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Seed and Plant Introduction and Distribution,

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ALFALFA (*Medicago sativa*).

[Instructions adapted to New York and the New England States.]

Description.—Alfalfa is an upright, smooth, perennial, leguminous forage plant. It occupies the same place in the agriculture of the West that clover does in the East. Alfalfa is to be preferred to red clover in the eastern sections of the country wherever it can be successfully grown. Pound for pound alfalfa hay is much better feed than clover, and three good hay crops may usually be procured each season. The crop lends itself readily to soiling purposes, as it quickly recovers and resumes growth after cutting. It is better adapted for this purpose than it is for pasturage. Since it is a perennial, it will last for a number of years.

Soil requirements.—A deep, fertile, well-drained, nonacid soil, reasonably free from weeds, is required. It will not succeed on a poorly drained soil or one low in fertility or deficient in lime. With the possible exception of limestone regions, all soils in this area may be safely considered to require liming for alfalfa. Even in limestone regions liming is often necessary. At least a ton of lime to the acre is required, and more than this may be necessary on the heavier soils. Well-rotted barnyard manure is the most satisfactory fertilizer. If this is not available, a liberal application of commercial fertilizer rich in potash and phosphoric acid should be made. The percentage of nitrogen may be low, but some nitrogen should be supplied for the young plants before they become inoculated and are able to secure their supply from the air.

Preparation of the soil.—When once started under favorable soil conditions, weeds, including bluegrass, are likely to prove the most dangerous enemy. For this reason, where possible, it is best to precede the alfalfa for at least one or two seasons with a clean-culture crop. Then the best method is to manure heavily in late winter or early spring, plow, lime, and harrow frequently until seeding time to prevent weed growth and to produce the necessary fine tilth and firm seed bed. A well-firmed and finely pulverized seed bed is one of the essentials in starting alfalfa, and ordinarily at least three or four weeks should intervene between the time of plowing and seeding to give plenty of time for the land to become well settled.

Inoculation.—Inoculating with nitrogen-fixing bacteria is essential unless the soil is known to be naturally supplied with these germs. This may be accomplished either by the use of artificial cultures or with soil from an old alfalfa field. If the artificial culture is used, the seed should be inoculated shortly before planting. If soil from an old alfalfa field is used instead of the artificial culture, it is essential that the soil be taken from around plants which are well supplied with nodules or tubercles. The soil should be broadcasted at the rate of from 200 to 500 pounds per acre and harrowed in immediately. The spreading should take place on a cloudy day, if possible, or in the late afternoon, as the sun's rays are destructive to the germs. Care should be taken to avoid introducing with the soil noxious weeds and fungous diseases. Soil from the roots of sweet clover will also inoculate alfalfa. This should be applied as suggested for soil from an old alfalfa field.

Seeding.—The seed should be sown alone at the rate of 20 to 30 pounds per acre. It may be drilled or sown broadcast and covered lightly with a smoothing harrow. A much more even stand can be secured by seeding one half the seed north and south and the other half east and west. Sowing with a nurse crop in early spring is the common practice in some sections, but better results are usually obtained by waiting until the last of May or middle of June and seeding the alfalfa alone. Good results have been obtained by seeding the latter part of July and the first part of August. Where weeds are troublesome it is much better to harrow or surface work the land frequently until late summer before seeding. Alfalfa is more likely to winterkill under this last method, but this danger may be less than that of the weeds when sown in the spring.

Treatment of the stand.—If sown with a nurse crop, this crop should be cut green for hay to give the alfalfa full possession of the land as soon as possible. If allowed to mature, the nurse crop often robs the alfalfa of moisture and fertility when these are most needed. In spring seeding, unless the weeds threaten to choke out the young plants, they should not be clipped until they are 12 or 15 inches high and beginning to bloom. The cutter bar of the mower should be set high, as the alfalfa is likely to be injured if cut low. If the first cutting is light, it may be left on the land as a mulch. If heavy enough to smother the alfalfa plants, it should be removed. Fall seeding should not be mown until the following spring, when it can be cut regularly for hay each time as the plants start to bloom. Under no circumstances should the field be pastured during the first two years, and even an old field had best be pastured sparingly. If green feed is desired, soiling is the best practice.

Need of experimenting.—In most parts of New York and the New England States alfalfa growing is still in the experimental stage. The data at hand indicate that there is, perhaps, no other crop so rigid in its requirements of soil and treatment. Failure to provide any one of the requirements usually means failure. For this reason one's first attempts should be limited to a comparatively small area until he is thoroughly familiar with the needs of this crop.

